

## **AMENDED SPECIFICATIONS**

Please amend paragraph 0016 of the application as indicated below:

**[0016]** The novel features that are believed to be characteristic of the invention, both as to organization and methods of operation, together with the objects and advantages thereof, will be better understood from the following detailed description and the drawings wherein the invention is illustrated by way of example for the purpose of illustration and description only and are not intended as a definition of the limits of the invention:

**Fig. 1** (prior art) is a schematic illustration of a drilling system

**Fig. 2** is an exemplary configuration of the various components of a resistivity measuring sensor sub

**Figs. 3a - 3d** show exemplary configurations of a resistivity measuring sub.

**Fig. 4** shows an exemplary illustration of a galvanic sensor

**Fig. 5** shows another exemplary illustration of a galvanic sensor.

**Fig. 6** is an exemplary block diagram of an arrangement for maintaining constant power consumption.

**Fig. 7** (prior art) shows an electrode configuration according to one embodiment of the present invention.

**Fig. 8** is a block diagram of an arrangement for compensating for contact resistance.

**Fig. 9** is an illustration of a model showing a resistivity measuring device according to the present invention in proximity to a bed boundary.

**Fig. 10** shows simulated azimuthal responses for the configuration of **Fig. 9** for various

distances of the tool from the bed boundary

**Fig. 11** shows model measurements using the device of the present invention in proximity to a model.

~~**Fig. 12a** shows a physical model for testing the apparatus of the present invention.~~

~~**Fig. 12b**~~ **Fig. 12** (in color) shows an exemplary image obtained using the apparatus of the present invention in a model.

**Fig. 12** shows the physical model for testing the apparatus of the present invention.

**Fig. 13** shows an example of a shielded magnetic dipole suitable for use in an embodiment of the present invention.

**Fig. 14** shows an example of a quadrupole induction system suitable for use in an embodiment of the present invention.

**Fig. 15** (prior art) shows an example of ground penetrating radar measurements used for monitoring a fluid interface in a model study.

**Fig. 16** (prior art) shows use of an induction coil as a resistivity sensor.

Please amend paragraph 0034 of the application as indicated below:

[0034] Turning now to ~~Fig. 12b~~, Fig. 12 an example of a resistivity image produced by a galvanic resistivity sensor according to the method of the present invention. For laboratory measurements a borehole simulation tool was built up where measurements can be simulated. The tank model used for the experiment is shown in **Fig. 12a**. The physical model 781 consists of two blocks of different materials (tuff 771 and sandstone 777 with a dipping boundary 775 between the two blocks. The tool (not shown) is conveyed into a cylindrical hole 773. The annulus between the tool and the blocks 771 and 777 is filled with brine. The tool comprises a return, guard and measurement electrodes and the isolations between them. The stones are saturated with brine. From preliminary measurements resistivities of 66  $\Omega$ -m and 12 $\Omega$ -m are estimated for sandstone and tuff, respectively.